

# CMSC131

Intro to Computational Thinking

# How do you accomplish a task?

When faced with a task, we often need to undertake several steps to accomplish it.

We can think of this as a set of instructions, a recipe, a strategy, an algorithm, etc. but regardless of the term we use, it is a way of expressing a series of steps to follow.

# Walking

Imagine you needed to give directions to a mindless yet trained zombie who wanted to get to a sunflower to eat it but avoid things that would kill it.

Your directions would need to be very precise since this zombie would do what you said, and only what you said.

Imagine you only had 3 instructions available; move forward one space, turn right  $90^\circ$ , and turn left  $90^\circ$ .

# Stay on the path!

While you might want to just tell the zombie below to “stay on the path” that is not one of your instructions. Your goal is to keep the zombie on the path? What would you give as the instructions?



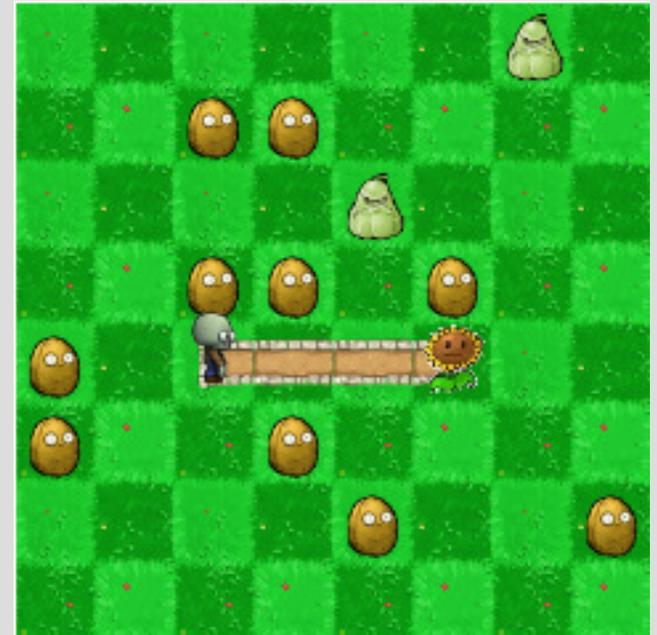
# Stay on the path! Solution.

In this case, keeping the zombie on the path and having it reach the sunflower would require the following steps:

Move Forward

Move Forward

Move Forward



Visit the following page and drag and click three of the “move forward” bricks onto the workspace and then click “Run” to see it work. <https://studio.code.org/s/course3/stage/2/puzzle/1>

# Dealing with turns!

In the next challenge, your zombie needs to follow a path with turns along the way.

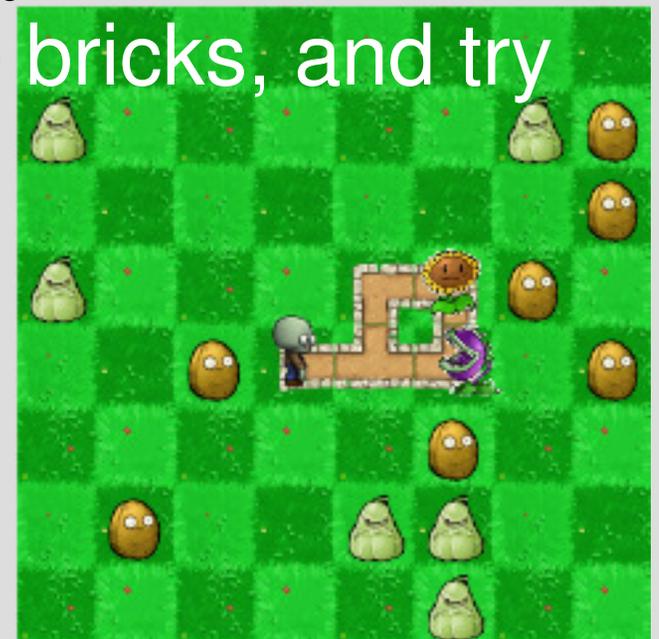
Not only do we want to get the zombie to the flower, we also want to get it there with the fewest instructions! What would they be?



# Dealing with turns! Give it a try.

Visit the following page and drag and click the appropriate bricks for your solution onto the workspace and then click “Run” to see it work. <https://studio.code.org/s/course3/stage/2/puzzle/2>

If it doesn't work the first time, you can click on “Reset” and then change the bricks, and try again.



# Dealing with turns! Solution.

After the first step forward, your zombie needs to turn. You have to imagine you are the zombie when giving directions, so the zombie must turn to its left.

The zombie is then ready to take another step forward. At that point it will need to turn again. This time, to its right.

It is then ready for one more step forward and a yummy sunflower.

# Must walk further!

In the next challenge, your zombie needs to follow a path with turns along the way, and the path is longer.

Visit the page for this puzzle and give it a try.

<https://studio.code.org/s/course3/stage/2/puzzle/3>



# That was exhausting...

You may have noticed that, similar to in the first puzzle, you had to tell your zombie to move forward several times in a row.

For class on Wednesday, think about how you might want to be able to make that less tedious and redundant in how you write the instructions (even though from the zombie's point of view, it will need to move one step forward multiple times in a row).